

1. (Twice amended) A method implemented in a computer program application performing operations on documents having states, the method comprising:

maintaining in a memory a state history of a document; and

whenever an interesting operation has occurred, an interesting operation being an operation by a user that changes the state of the document, automatically capturing the state of the document as it exists after the operation and adding the captured state to the state history of the document.

2. The method of claim 1, wherein the memory comprises a disk file.

3. (Amended) The method of claim 1, further comprising:

maintaining in the state history the order in which the stored states were automatically added to the state history; and

displaying the state history to a user as a list of document states shown in their stored order.

4. (Amended) The method of claim 3, wherein:

the list of document states displayed to the user comprises a list of items, each item representing a state of the document that existed after an interesting operation and that can be recovered directly by selecting the item.

5. (Amended) The method of claim 4, further comprising:

providing a tool operable under user control to obtain source material from any state in the state history and apply it to a current state of the document, where the document is a raster image.

6. (Amended) The method of claim 4, further comprising:

enabling a user to select any item in the displayed list of items and cause the application to create a new document having the document state corresponding to the selected item.

7. The method of claim 4, wherein:

each of the captured states in the state history maintains the state data in essentially its original form, whereby the captured state data is suitable for immediate use in other operations.

8. (Cancelled)

9. (Amended) A computer-implemented method of interacting with a user editing a document in a computer program application, the document having a document state, the method comprising:

receiving from the user a sequence of commands to change the document;

changing the document state in response to each command;

adding the changed document state to a state history maintained in a computer-readable memory device each time the document state is changed;

for each document state added to the state history, adding a corresponding entry to a history list displayed to the user on a computer-controlled display device operated as part of a graphical user interface; and

in response to a user action, selecting an item in the history list and establishing the document state corresponding to the selected item in the history list as the current state of the document.

10. The method of claim 9, wherein:

the state history and the history list are limited to storing a preset number of items and excess items are scrolled off the top of the list as new items are added.

11. The method of claim 9, wherein:

the state history is stored in a region of memory and the oldest document states in the state history are discarded when free space in the region runs low.

12. The method of claim 11, wherein:

the oldest document states are found and discarded by a memory management process.

13. (Amended) The method of claim 9, further comprising:

in response to a user command to change the document state corresponding to the selected item in the history list and established as the current state of the document, deleting the items after the selected item in the history list and the corresponding document states from the state history.

14. (Amended) The method of claim 9, further comprising:

in response to a user command to change the document state corresponding to the selected item in the history list and established as the current state of the document, maintaining the items after the selected item in the history list and adding a new item to the end of the history list and a new document state to the state history.

15. The method of claim 9, further comprising:

enabling a user interface gesture on the history list to create a new document from a document state from the state history.

16. (Amended) A method implemented in a computer program application operable to create and edit a document, comprising:

maintaining in a memory a state history of a document;

in response to a user action, selecting a first state from the state history and establishing the first selected state of the document as the current state of the document;

in response to a user action, selecting a second state from the state history, the second state being a state created after the first state, as a source of data for an operation; and

performing the operation with the data from the second state on the first state.

17. (Amended) A method implemented in a computer program application operable to create and edit a document, comprising:

keeping a history of document states of a document, the document states being created automatically whenever a user command to the application changes the state of the document and being complete in themselves;

enabling the user to discard any of the states in the history to create a revised history; and

enabling the user to step backward and forward through the revised history and thereby alter the state of the document to be any of the document states in the revised history.

18. (Amended) A method implemented in a computer program application operable to create and edit a document, comprising:

keeping a history of document states of a document, the document states being created automatically whenever a user command to the application changes the state of the document and being complete in themselves;

enabling the user to discard any of the states in the history to create a revised history; and

enabling the user to designate any one of the document states in the revised history and thereby establish the designated state as the current state of the document.

19. The method of claim 18, further comprising:

saving the history when the document is closed on a long-term storage medium, whereby the history may be restored when the document is later opened and across invocations of the application.

20. The method of claim 19, wherein:

the saved history resides in the document with final document data.

21. The method of claim 19, wherein:

the saved history resides in a long-term data repository independent of the original document.

22. (Thrice amended) A method enabling a user to control operation of a computer program application for creating and modifying a document, the method comprising:

identifying for the user on a display device a set of states that the document has been in by operation of the application; and

enabling the user to designate any one of the identified states as a document state operand.

23. The method of claim 22, further comprising:

displaying the document in a user interface window, the document being a digital image.

24. The method of claim 23, wherein the digital image has a plurality of layers, each of the plurality of layers having a plurality of channels, the method further comprising:

displaying user-interface elements for applying filters to the digital image.

25. The method of claim 22, further comprising:

establishing the designated state as the current state of the document in response to a user command.

26. (Cancelled)

27. (Previously amended) The method of claim 22, further comprising:

providing the user a delete tool for deleting the designated state from the set of states.

28. The method of claim 22, wherein:

the set of states is identified by displaying a scrollable list of elements each identifying one of the states in the set.

29. The method of claim 28 wherein the list elements are ordered by the time the corresponding states were created.

30. The method of claim 25 wherein the designation and establishment are performed in response to a single command.

31. The method of claim 25 wherein the set of states is displayed in an order, the method further comprising:

enabling the user to make a gesture on a user interface indicating a sequence of displayed state identifiers and responding to the gesture by displaying the document in the states indicated as the gesture is made.

32. The method of claim 25 further comprising:

enabling the user to modify the document state after the establishing step; and

adding the document state resulting from the modification to the set of states identified on the display device.

33. The method of claim 31 wherein the set of states is displayed in order of creation of the states in the set.

34. The method of claim 31 wherein the document is a digital image.

35. The method of claim 25 further comprising:

providing a step backward and a step forward command for the user to execute to navigate the set of states; and

providing a separate undo and redo command for the user to undo and redo commands entered by the user.

36. (Previously amended) The method of claim 22, further comprising:

providing a step backward and a step forward command for the user to execute to navigate the set of states; and

providing a separate undo and redo command for the user to undo and redo commands entered by the user.

37. (Twice amended) Apparatus comprising a computer-readable storage medium tangibly embodying program instructions defining a computer program application for performing operations on documents having states, the program comprising instructions operable for causing a programmable processor to:

maintain in a memory a state history of a document; and

whenever an interesting operation has occurred, an interesting operation being an operation by a user that changes the state of the document, the state being complete in itself and independent of other states; automatically capture the state of the document as it exists after the operation and add the captured state to the state history of the document.

38. Cancelled.

39. (Amended) Apparatus comprising a computer-readable storage medium tangibly embodying program instructions for interacting with a user editing a document in a computer program application, the document having a document state, the apparatus comprising instructions operable for causing a programmable processor to:

receive from the user a sequence of commands to change the document;

change the document state in response to each command;

add the changed document state to a state history maintained in a computer-readable memory device each time the document state is changed;

for each document state added to the state history, add a corresponding entry to a history list displayed to the user on a computer-controlled display device operated as part of a graphical user interface; and

in response to a user action, select an item in the history list and establish the document state corresponding to the selected item in the history list as the current state of the document.

40. (Amended) A computer program, residing on a computer-readable medium, comprising instructions for causing a computer to:

keep a history list;

in response to a user action, select a first state from the history list and establish the first selected state of the document as the current state of the document;

in response to a user action, select a second state from the history list, the second state being a state created after the first state, as a source of data for an operation; and

perform the operation with the data from the second state on the first state.



41. (Amended) A computer program, residing on a computer-readable medium, comprising instructions for causing a computer to:

keep a history of document states created by a user; the document states being created automatically whenever a user command to the application changes the state of a document and being complete in themselves;

enable the user to discard any of the states in the history to create a revised history; and

enable the user to step backward and forward through the revised history and thereby alter the state of the document to be any of the document states in the revised history.

42. (Amended) A computer program, residing on a computer-readable medium, comprising instructions for causing a computer to:

keep a history of document states created by a user, the document states being created automatically whenever a user command to the application changes the state of a document and being complete in themselves;

enable the user to discard any of the states in the history to create a revised history; and

enable the user to designate any one of the document states in the revised history and thereby establish the designated state as the current state of the document.

43. (Previously amended) A computer program, residing on a computer-readable medium, comprising instructions for causing a computer to:

create and modify a document;

identify for a user on a display device a set of states that the document has been in by operation of the application; and

enable the user to designate any one of the identified states.

44. The method of claim 36, further comprising:

providing to the user a first undo command function that operates with reference to the first history and a second undo command function that operates with reference to the second history.

Please add claims 45 – 47:

45. (New) The method of claim 3, further comprising:

establishing as the current state of the document a state stored in the state history.

46. (New) The method of claim 1, further comprising:

maintaining in memory a history of all operations requested by a user, including operations global to the state of the application.

47. (New) The apparatus of claim 37, further comprising instructions operable for causing a programmable processor to:

maintain in memory a history of all operations requested by a user, including operations global to the state of the application.

In the drawings:

Please substitute the revised Figure 2 for the previously submitted Figure 2. The revised Figure 2 does not have the reference numbers 212 and 216 that were in the previously submitted figure.